

REMARKS

This Amendment responds to the Office Action dated April 14, 2003 in which the Examiner rejected claims 1-24 under 35 U.S.C. §103.

As indicated above, claims 1 and 11 have been amended to make explicit what is implicit in the claims. It is respectfully submitted that the amendment is unrelated to a statutory requirement for patentability.

Claims 1 and 11 claim a data processing system comprising a plurality of processors and a memory. The plurality of processors execute a series of different types of processing on data to be processed in a prescribed order. Each processor executes a processing different from one another. The data to be processed is image data that consists of a plurality of pixel data. The memory stores the data to be processed in association with state information to represent the processing to be performed next for each pixel data to be processed. Processings are asynchronously executed on the data to be processed by the plurality of processors. One processing is executed on each pixel data by one processor at a time. The plurality of processors share the memory.

Through the structure of the claimed invention a) having each processor execute a processing different from one another and b) having one processing executed on each pixel data by one of the processors at a time, as claimed in claims 1 and 11, the claimed invention provides a data processing system capable of processing data at high speed while allowing the memory capacity to be reduced. The prior art does not show, teach or suggest the invention as claimed in claim 1.

Claims 1-24 were rejected under 35 U.S.C. §103 as being unpatentable over *Orimo et al.* (U.S. Patent No. 5,630,135) in view of *Tanenbaum* (Distributed Operating Systems, 1995).

Orimo et al. appears to disclose the term of "multiple-version programs" means a plurality of programs for performing the same function but having different program structures. The execution results of the programs may be either the same or not the same. (col. 1, lines 18-22) In a distributed processing system having a plurality of processors connected through a network, at least two first processors execute multiple-version programs which perform the same function, and messages which contain data output as execution results of the programs and attribute information indicating the versions of the executed programs are sent from the first processors to the network. The messages containing the results of processing by the multiple-version programs sent from the first processors are received by a second processor, which selects one message from the received messages based on the attribute information contained in the received messages and executes a program in the second processor by using the data contained in the selected message. (col. 2, lines 2-16) As shown in Fig. 1, multiple-execution system 100 for the multiple-version programs comprises processors 11, 12, 13 and 14 connected to any type of network. Each of the processors 11, 12, 13 and 14 stores an application program in an associated internal memory and executes the application program to conduct various processings. Each application program has a name assigned to correspond to a function and attribute, including version information and is managed thereby. Where the multiple-version programs performing the same function are not present, the attribute thereof is

"Null". (col. 3, lines 57-67) FIG. 2 is a diagram of a main part of a format of a message flowing over the network 1. Data transmitted among the processors by the message is stored in a data field 205. A CC field 201 stores a content code indicating the content of the data stored in the data field 205. The processors 11-14 connected to the network determine whether to read in the message flowing over the network 1 or not based on the content code of the CC field 201. A name field 203 stores information for identifying an application program generated by the message. A name of the application program is used as the information to be stored in the name field 203. An ATR field 204 stores an attribute of the application program generated by the message. (col. 4, lines 1-16) Fig. 8 is a diagram which shows a flow chart of the messages when the application programs 51, 52a, 52b and 54 are executed by the processors 11-14. (col. 7, lines 51-53) The processors 12 and 13 receive the message having "CCbi" set in the CC field 201 and execute the application programs 52a and 52b, and sends the execution results to the CC field 201 as the messages having "CCbo". The application programs 52a and 52b are programs of different versions which perform the same simulation by using the execution result outputted from the application program 51, and have the same name and different attributes. (col. 7, lines 59-67)

Thus, *Orimo et al.* merely discloses that at least two of the processors 12 and 13 execute different versions of the same program and thus execute the same type of processing. Thus, nothing in *Orimo et al.* shows, teaches or suggests that each processor executes processing different from one another as claimed in claims 1 and 11. Rather,

Orimo et al. merely discloses executing different versions of the same program (i.e. same processing).

Additionally, *Orimo et al.* merely discloses that the processors 12 and 13 process the same data simultaneously (col. 8, lines 34-37, col. 10, lines 11-13). However, as claimed in claims 1 and 11, one processing is executed on each pixel data by one processor at a time. However, *Orimo et al.* teaches away from the claimed invention and processes the data simultaneously in processors 12 and 13.

Tanenbaum appears to disclose that sharing plays an important role in Mach. No special mechanism is needed to the threads in a process to share objects: they all see the same address space automatically. If one of them has access to a piece of data, they all do. More interesting is the possibility of two or more processes sharing the same memory objects, or just sharing data pages, for that matter. On multiprocessor systems, sharing of objects between two or more processes is frequently even more important. In many cases, a single problem is being solved by a collection of cooperating processes running in parallel on different CPUs (as opposed to being timeshared on a single CPU). These processes may need access to buffers, tables, or other data structures continuously, in order to do their work. It is essential that the operating system allow this sharing to take place. (page 449)

Thus, *Tanenbaum* merely discloses a shared memory. Nothing in *Tanenbaum* shows, teaches or suggests a) each processor executes a processing different from one another and b) one processing is executed on each pixel data by one of the processors at a

time as claimed in claims 1 and 11. Rather, *Tanenbaum* merely discloses a shared memory.

A combination of *Orimo et al.* and *Tanenbaum* would merely suggest that the processors 12 and 13 of *Orimo et al.* share a memory as is taught by *Tanenbaum*. Thus, nothing in the combination of *Orimo et al.* and *Tanenbaum* shows, teaches or suggests a) each processor executes a processing different from one another and b) one processing is executed on each pixel data by one of the processors at a time as claimed in claims 1 and 11. Therefore, Applicants respectfully request the Examiner withdraws the rejection to claims 1 and 11 under 35 U.S.C. §103.

Claims 2-10 and 12-24 depend from claims 1 and 11 and recite additional features. It is respectfully submitted that claims 2-10 and 12-24 would not have been obvious within the meaning of 35 U.S.C. §103 over *Orimo et al.* and *Tanenbaum* at least for the reasons as set forth above. Therefore, it is respectfully requested that the Examiner withdraws the rejection to claims 2-10 and 12-24 under 35 U.S.C. §103.

Thus it now appears that the application is in condition for reconsideration and allowance. Reconsideration and allowance at an early date are respectfully requested.

If for any reason Examiner feels that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned attorney at the indicated telephone number to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed within the currently set shortened statutory period, applicants respectfully petition for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

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